



Jagadish Chandra Bose Research Centre  
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## 2 Days Workshop on LabView (Virtual Instrumentation)

LabVIEW (Laboratory Virtual Instrumentation Engineering Workbench) is a platform and development environment for a visual programming language, "G", from National Instruments. LabVIEW is commonly used for data acquisition, instrument control, and industrial automation on a variety of platforms including Windows, UNIX, Linux, and Mac OS X.

It would be a useful workshop for electronics, electrical, computer and IT professionals, students and faculty members who want to develop, simulate and test the digital and analog systems. The course is heavily Lab oriented in which participants will get hands-on-experience. Consequently it gives an opportunity for a person to improve his/her skill keeping in view of the practical nature of the course. The resource person of this course has true practical hands-on experience of system Designing industry.

### **Workshop Duration:** 2 days (16 hrs.)

The duration of this workshop will be two consecutive days with eight hours session each day, in a total of sixteen hours properly divided into theory and hand on practical sessions. At the end of this workshop a competition will be organized among the participating students where each participating student will get Certificate of Participation and the Winners will get Certificate of Merit.

### **Two Days workshop Schedule:**

#### **Day 1 (Session 1)**

##### **Introduction to LabView**

- What is Virtual Instrumentation
- The dominance of LabView over other languages
- The application of LabView in various fields of engineering
- LabView Environment

##### **Arithmetic Functions in LabView**



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- Data Types
  - Matrixes and Vectors
  - Creating Matrixes and Vectors
  - Matrix Operation
  - Array Operation
  - Indexing Matrix
  - Adding Elements to Vector or Matrix
  - Data Plotting

## **Day 1 (Session 2)**

### **Graphical Programming in LabView**

- If-else statements
- Loops in LabView
- Sub VI in LabView
- Projects to cover day long activities

## **Day 2 (Session 3)**

### **Digital Signal Processing Tool Box**

- Various wave generation in LabView
- FFT & PSD Calculation
- FIR Filter Designing
- IIR Filter Designing
- Project on DSP



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## Day 2 (Session 3)

### Real Time Programming in LabView

- Sound Acquisition from laptop sound card
- Interfacing USB2009 DAQ card.
- Programs for acquiring data from DAQ card
- Projects based on real time applications

#### Note:

1. These are just the major aspects that we will be discussing, each point will be elaborated in detail with demonstrations of the tools and techniques.

### Prerequisite for Workshop

- Passion to learn new creative things.
- Knowledge of basic chips and micro controllers.
- Having basic knowledge of Computers.
- Basics of programming.
- PC/laptop must have at least 2GB RAM.
- Windows is preferable
- In case of MacBook or Linux, You need virtual window or .exe installers.
- Laptop/PC must have Bluetooth and its drivers.

### Who Could Attend?

- College students seeking future in real time application development.
- Educate Faculty & Staff in Labview.



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- Electronics, Instrumentation & Communications Students.
  - Students from any branch can attend the workshop.

### **Benefits of Workshop**

- Detailed knowledge about LavVIEW.
- Students can design any Real time application using DAQ.
- How to acquire data from physical world to computer.

### **Course Material & CD**

- Software tool kit CD having (Study E-Book, Videos, Programs)